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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,887	11/26/2003	Thomas M. Laney	87430CPK	1673

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EXAMINER	
BUTLER, PATRICK	

ART UNIT	PAPER NUMBER
1732	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,887	LANEY ET AL.	
	Examiner	Art Unit	
	Patrick Butler	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19,21-26 and 29-40* is/are pending in the application.

4a) Of the above claim(s) *31-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19,21-26,29,30 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: On page 11, line 10, "thickness, if an extruded monolayer" appears to contain a typographical error, which would read "thickness of an extruded monolayer" when corrected.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19, 21-26, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Morita et al. (US Patent No. 5,405,887).

With respect to Claim 19 and 40, Morita teaches a method of making a porous film by adding from 40-250 parts finely-powdered filler to 100 parts polylactic acid-based resin composition and melting (blending void initiating particles into a melt comprising a polylactic-acid-based material wherein the void initiating particles are employed in an amount of 30-50% by volume in feedstock) (see Abstract). The blend is melt-extruded through a flat die to form an extrudate (extruding the polylactic-acid-based materials as a monolayer film to form a sheet comprising a layer of a polylactic-acid-based material containing inorganic particles) (see col. 7, lines 7-27). The sheet is stretched biaxially from 1.1 to 10 times (stretching the sheet biaxially, in which draw ratios in both the

longitudinal and transverse directions are greater than 3 times and not more than 5 times; at least about 3.3 times and not more than 5 times) (see col. 7, lines 28-32), which would necessarily cause the area ratio between the non-stretched sheet and the biaxially stretched film to be in the range of 1.2 to 100 (greater than 10 times and not more than 20 times; at least about 11 times and not more than 20 times). The film would have pores (title). The sheet would necessarily be microvoided and have a total adsorbent capacity of at least about 14 cc/m^2 principally because its process is the same process as claimed.

With respect to Claim 21, Morita's sheet is stretched at a temperature of T_g + 50 °C such as 60 °C (under 75 °C) (see col. 7, lines 35-39 and col. 10, lines 44-46).

With respect to Claims 22 and 23, Morita's average particle diameter is 0.3 to 4 μm (see Abstract), which reads on the claimed range of 0.1-1 μm (Claim 22) and 0.1-0.6 μm (Claim 23).

With respect to Claim 24, the film thickness is from 10 to 300 μm (see col. 7, lines 40-44), which reads on the claimed range of 25-400 μm.

With respect to Claim 25, Morita teaches a method of making a porous film by adding from 40-250 parts finely-powdered filler to 100 parts polylactic acid-based resin composition, which would necessarily overlap 45-75 weight % filler (see Abstract). The filler is inorganic (see col. 6, lines 28-38).

With respect to Claim 26, Morita teaches using barium sulfate, calcium carbonate, zinc oxide, titanium dioxide, and silica (see col. 6, lines 28-38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US Patent No. 5,405,887) as applied to Claim 19 above, and further in view of Kanai et al. (*Film Processing*, pages 322 and 323).

With respect to Claim 29, Morita teaches the method of making film as previously described. Morita does not appear to expressly teach stretching the sheet in both directions simultaneously.

Kanai et al. teach simultaneous biaxial stretching of film (see page 322, § 6.3.2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kanai's simultaneous biaxial stretching in the process of Morita in order to have good processability and simultaneous relaxation (see page 322, § 6.3.2).

With respect to Claim 30, Morita teaches the method of making film as previously described. Morita does not appear to expressly teach stretching the sheet in a machine direction first followed by a transverse direction.

Kanai et al. teach stretching film in a machine direction first followed by a transverse direction (see page 323, *Sequential Biaxial Stretching* sections).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kanai's stretching film in a machine direction first

followed by a transverse direction in the process of Morita in order to avoid the shortcomings of the other biaxial stretching: a) simultaneous biaxial stretching - unsuitable for high-speed processing and b) TD then LD (transverse then machine direction) biaxial stretching - uniformly stretching wide film (see page 323, second paragraph and second-from-last paragraph).

Claims 19, 21-26, 29, 30, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US Patent No. 5,443,780) in view of Laney et al. (US Patent No. 6,379,780).

With respect to Claims 19 and 40, Matsumoto teaches extruding a film from polyester, specifically extruded polylactic acid, and with biaxial stretching (extruding polylactic-acid based materials as a monolayer film, and stretching the sheet biaxially) (see col. 1, lines 7-9 and col. 4, lines 17-29). Matsumoto's film does not disclose additional layers and is necessarily monolayer as claimed (see col. 1, lines 36-51; col. 3, lines 17-57; and col. 4, lines 17-29). Matsumoto teaches biaxially stretching 2.5 x 2.5 (stretching the sheet biaxially in which both draw ratios in the longitudinal and transverse directions are in the range of 2 to 5 times) (see col. 3, lines 42 and 43).

However, Matsumoto does not appear to explicitly teach that each ratio is greater than 3 times and not more than 5 times or at least about 3.3 times and not more than 5 times, which would cause the area ratio between the non-stretched sheet and the biaxially stretched film to be within the claimed range (e.g., greater than 10 times and not more than 20 times; at least about 11 times and not more than 20 times).

However, in this regard, Matsumoto teaches stretching to improve mechanical strength and change physical properties (see col. 1, lines 15-27). As such, Matsumoto recognizes that the area ratio between the non-stretched sheet and the biaxially stretched film is a result-effective variable. Since the area ratio between the non-stretched sheet and the biaxially stretched film is a result-effective variable, one of ordinary skill in the art would have obviously been motivated to determine the optimum area ratio between the non-stretched sheet and the biaxially stretched film applied in the process of Matsumoto through routine experimentation based upon reaching increased mechanical strength, which would include the claimed dimensional and area ratios.

Matsumoto does not teach blending inorganic particles into a melt comprising a polylactic-acid-based material or forming interconnected microvoids.

Laney teaches making a layer of polyester film using a mixture of microbeads made of inorganic material and performing biaxial stretching (blending void initiating particles into a melt; extruding said materials to form a layer of material containing inorganic particles by extrusion; stretching the sheet biaxially ... to form interconnected microvoids around the inorganic particles, thereby obtaining a permeable microvoided sheet that is a monolayer film of polylactic acid based material) (see col. 2, lines 35-61; col. 4, lines 22-26; col. 11, lines 31-43, and col. 12, lines 23-27). Laney teaches using voiding agents to an extent greater than 30% by volume (wherein the void initiating particles are employed in an amount of 30-50% by volume in feedstock) (see col. 15, lines 30-32).

It would have been obvious to use Laney's teaching for using microbeads in the polyester material taught by Matsumoto because of the absorbency properties which efficiently absorb printed inks without the need of multiple processing steps or multiple coated layers (see Laney col. 2, line 62 through col. 3, line 1). The film would have a total adsorbent capacity of at least about 14 cc/m^2 principally because is it made by the same process as claimed.

With respect to Claim 21, Matsumoto's film is stretched from 55-80 degrees C, which overlaps the claimed range of under 75 degrees C (see col. 2, lines 49-54).

With respect to Claim 22 and 23, Laney's inorganic microbeads are sized within the range of 0.01-10 μ (0.01-10 micrometer), which includes the claimed diameter range of 0.1-1 micrometer and 0.1 – 0.6 micrometer (see col. 4, lines 23-31).

With respect to Claim 24, Matsumoto teaches an example of a film made to a thickness of 100-200 μm, which reads on the claim of 25-400 μm (see col. 3, lines 17-21).

With respect to Claim 25, Laney teaches at least two ranges of the proportion of inorganic particles to use. Example 4 teaches calcium carbonate used as the inorganic particle and, via indicating that organic and inorganic particles are interchangeable to perform the invention, at 45% by weight (wherein the void initiating particles are inorganic particles that make up from about 45 to about 75 weight % of the total weight) (see col. 14, lines 40-45 and col. 13, lines 52-60). Moreover, Laney teaches using microbeads (inorganic particles) to an extent greater than 30% by volume, which would

necessarily include the upper range of the claimed 45-75% by weight (see col. 15, lines 30-32).

With respect to Claim 26, Laney specifically teaches using barium sulfate, calcium carbonate, silica, and alumina, which read on the claim (col. 4, lines 27-31).

With respect to Claim 29 and 30, Matsumoto teaches simultaneous biaxial stretching (stretched in both directions simultaneously) and successive biaxial stretching (sequentially stretched in a machine direction first followed by a transverse direction) (see Abstract).

It would have been obvious to one of ordinary skill at the time of the invention to pick one of the directions to perform stretching in the machine direction first (machine) before the second direction (transverse).

Response to Arguments

Applicant's arguments filed 13 March 2007 have been fully considered but they are not persuasive.

Applicant argues with respect to the objections. Applicant's arguments appear to be on the grounds that

1) The amendment to the specification and title obviate the Specification objections of record.

Applicant argues with respect to the 35 USC 102(b) rejections. Applicant's arguments appear to be on the grounds that:

2) Morita does not disclose step (c) of Claim 19.

Applicant argues with respect to the 35 USC 103(a) rejections. Applicant's arguments appear to be on the grounds that:

3) Morita's teaching of stretching is not more than a total of 10 times, and the only example of biaxially stretching is 3 times per direction. Moreover, Morita explicitly limits the stretching to 10 times due to breakage.

4) It is non-obvious to combine Matsumoto with Laney because of the results of Applicant's results of stretching Matsumoto's monolayer material (see Applicant's ex. 4 and 5) being failure.

5) Applicant's interprets Matsumoto to require no permeability and require high tensile strength, which would be destroyed by Laney.

6) As relied upon, the portions of the reference are selectively picked to teach the invention without considering the features teaching away from the present invention.

The Applicant's arguments are addressed as follows:

1) Although most of the objections were resolved, the remaining objections as indicated in the Specification objections section above appears to remain unresolved by the Specification amendments filed.

2 and 3) Morita's teaching of the claimed directional ratios is achieved by the explicit statement of stretching from 1.1 to 7 times, and the biaxially stretching is achieved by the teaching of conducting the stretching biaxially (see col. 7, lines 28-31). The product of microvoiding is assumed to be met via teaching the claimed steps for achieving the microvoiding. The area ratio is assumed to be met via the function of multiplying the stretching of each axis. The stretching of up to 10 times is interpreted by

the Examiner to be directional in Morita since biaxial stretching is discussed and the ratio stretching is referred to as "successively", which would indicate one direction followed by another direction (see col. 7, lines 28-31).

4) Reliance on Applicant's Specification to show an expectation of failure does not overcome the references' not teaching failure of the combination.

4) Applicant's stretching appears to be on a different material than Matsumoto is relied upon for since Applicant's example uses amorphous polyester resin not disclosed to be a PLA polyester resin (see Specification, page 21, lines 6-10 and 19-22) and Matsumoto is relied upon for teaching PLA resin (see col. 1, lines 6-9).

4) Laney's teaching of using a backing is indicated as being a reinforcement (see col. 3, lines 1-7) which is less critical than Applicant's interpretation of the backing being an absolute in Laney to avoid failure.

5) The Examiner interprets Matsumoto's teaching of increasing strength to be an indication of how to increase any PLA film product—by stretching it (see col. 1, lines 20-23)—rather than excluding films above the strength provided by Matsumoto's examples.

5) Moreover, although the voids may not be relied upon for strength given their absence of material, the arguments of counsel regarding the strength of the voided material cannot take the place of evidence in the record.

6) The motivations for combining and overall evidence of expectation of success are provided as discussed in the above rejections and responses to Applicant's arguments as individually presented above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m.-5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PB

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5/29/07